

less, it is only necessary after using a solution of the eucain salts to use a solution of epinephrin, and this solution, in fact, adds to the analgesic effect of the eucain.

My experience with solutions of eucain in ophthalmic work was not at all satisfactory. The installations of these solutions into the conjunctival sac produced both pain and hyperemia, the pain usually quickly subsided, but the hyperemia sometimes remained for hours. These have been common experiences, and led the manufacturers to seek a more soluble and less irritating salt of beta-eucain, and they have succeeded. The new salt, the lactate of beta-eucain, I have been experimenting with for the past three or four months. It is a white hygroscopic powder which is freely soluble in water to about 25 per cent, and in alcohol to 13 per cent. It is slightly alkaline and contains a trifle less eucain than the beta-eucain hydrochlorat, 119 parts of the former equaling 100 of the latter. The solution is intensely bitter to the taste, and when applied to the mucous membrane of the nose or throat, it produces a sharp burning sensation, which quickly passes away, without any hyperemia, anemia or shrinkage, and leaves only an anesthetized area.

On account of the fact that the lactate contains slightly less eucain than the hydrochlorat, stronger solutions should be used, for nose and throat work 10 to 15 per cent, and for eye work 2 to 5 per cent. I have been using 12 per cent solutions of the lactate to anesthetize the mucous membrane in making diagnoses of nose, throat and ear troubles. They do not disturb the circulation or shrink the tissues so that you may see them and feel them with your probe while in their natural condition. For removing portions of the turbinated bodies I use a tampon of cotton saturated with 12 per cent solution of the lactate, allow it to remain 5 minutes, replace it with another, allow it to remain 5 minutes; when, ordinarily, the parts are ready for operation.

When spurs of the septum are to be removed, after using the lactate as above, put in a tampon saturated in 1-1000 epinephrin solution, so that the tissues will be shrunken as much as possible. Epinephrin may be used in combination with the lactate when operating on the middle turbinated bodies or the ethmoidal cells.

A 5 per cent solution of the lactate of beta-eucain, when dropped into the conjunctival sac, causes a more decided smarting than does a 4 per cent solution of cocain, but it causes neither hyperemia nor anemia, and it has the decided advantage of cocain in that it in no way disturbs vision, having neither cycloplegic nor mydriatic action, while the anesthetic effect is excellent and quite equal to that produced by a 4 or 5 per cent solution of cocain, although you have to wait a little longer for the anesthesia, and it produces no lesion of the cornea.

For infiltration anesthesia the following prescription will produce anesthesia in the course of 30 minutes, which will last 3 or 4 hours, and that too without any depressing effects, even though twice the quantity may have been injected:

R Lactate of beta-eucain gr. 4
Sodium chloride C. P. gr. 12
Sol. epinephrin (1-1000) m 10
Distilled water 3 3/4

M Inject 1/2 for ordinary operation.

When we consider the facts narrated before, why should we longer use cocain solutions in operations upon the eye, nose or throat?

1. We have all seen the stimulating effects of cocain; some of us have seen the syncope and other particularly distressing symptoms following its use in patients on whom we have used the same strength solution, and in as great a quantity, on previous occasions; some have had the misfortune to have patients die from the effect of weak solutions applied to the urethra or nasal mucous membrane.

2. We all know by reading, and probably most of us by personal knowledge, of the frightful "cocain habit," and this habit is altogether too frequently the result of using cocain solutions in the nose for operations and colds in the head.

3. Cocain produces temporary ischemia and shrinkage of mucous tissue, which many claim favors secondary hemorrhage after operations.

4. There are many occasions when these conditions are not desirable; when they are wished for they may be produced to a greater extent by other and less harmful means.

5. Cocain, when used in the conjunctival sac, dilates the pupil to a greater or less extent and interferes more or less with vision, in addition to its anesthetic, ischemic and shrinking qualities, besides sometimes causing corneal lesions.

1. Beta-eucain, hydrochlorat and beta-eucain lactate in particular, are only moderately toxic, the hydrochlorat being 3 1/2 times less toxic than cocain, and they have but very slight systemic effects. I have not noted in medical literature a single death, or, in fact, any serious or alarming symptoms following and resulting from their use, as they do not affect the heart.

2. There have been no cases reported of a "eucain habit" having been contracted by any one on whom the solutions have been used, although eucain has been in use nearly ten years.

3. Beta-eucain lactate neither produces hyperemia nor ischemia, and does not shrink the tissues; so of itself it is not likely to favor secondary hemorrhage.

4. When a bloodless and shrunken condition of a local mucous membrane is desirable it may be obtained by the local application of a solution of epinephrin by itself or in combination with a solution of the lactate of beta-eucain.

5. When a 5 per cent solution of beta-eucain lactate is dropped into the conjunctival sac, after the first temporary smarting is over (and this is considerably greater than that following the instillation of a 4 or 5 per cent solution of cocain), you have only an anesthetic effect. The pupil is not enlarged, there is no interference with accommodation, the conjunctiva is neither congested nor blanched, none of the tissues are contracted and the cornea remains intact.

Beta-eucain lactate solutions are permanent, undergoing no change by boiling, so that no difficulty is encountered in keeping them sterile.

A CASE OF PRIMARY CARCINOMA OF THE LUNG.*

By HENRY HERBERT, M. D., Los Angeles.

Pathological report by E. L. Leonard, M. D., Los Angeles.

THE history of the case is, in brief, as follows: Mrs. H., 53 years of age, German, married 24 years, had 5 children. Father died of unknown cause, mother from cancer of the stomach at the age of 59. Her parents had 11 children; one, a sister, died from cancer, a brother from phthisis, another brother died from cause unknown to her. Husband and children are living and healthy. Menstruation ceased at 50. Previous to her present illness patient was suffering for many years from bronchitis and laryngitis, as she claims.

November 23, 1903. Patient became suddenly sick with a so-called "cold," and suffered a great deal of pain in the left side of the chest; one month later hemoptysis set in, pain ceased, only to reappear in January, 1904, with fever and recurrent hemorrhages. At that stage of the disease the case was diagnosed as phthisis, and the patient was sent to California, and thereafter was in the care of Dr. C. Dietsch, of Los Angeles.

In March, 1904, Dr. Dietsch found on examination an absolute dullness over the upper lobe of the left lung; patient had fever, slight dyspnea, some pain in left side of thorax, no hemoptysis. Gradually cough and expectoration increased, patient complained of severe pain in left scapular and interscapular region. Bacteriological examination of sputum in April did not reveal the presence of tubercle bacilli, or of elastic fibres; fever and dyspnea much decreased, but pain became more severe.

Dr. Dietsch suspecting at that time a syphilitic infiltration of the lung, employed mercury and potassium iodid from April 10th to 25th, but without any result or benefit.

*Read before the Los Angeles County Medical Association, December, 1904.

During May and June there was continuous expectoration of blood, the sputum having a peculiar gelatinous, viscid consistency, dark red, currant or raspberry jelly-like with a rather violet or bluish hue. Dr. Dietsch suspecting a malignant tumor called me in consultation, and June 13th careful examination revealed the following condition:

Status presents: Objective symptoms. Patient was confined to bed, but able to walk around more or less; of small stature with small frame, dark complexion, anemic, with brownish or yellowish tint of skin, cheeks slightly flushed, morbid expression of face, greatly emaciated muscles atrophic, mucous membranes anemic, fingers slightly club-shaped, nails cyanotic and curved. Thorax in dimensions and shape of normal appearance, also both mammae, no retractions or grooves visible. Respiratory movement of left side markedly retarded, in upper region not present at all. Above sternal end of left clavicle, just above the jugular fossa, one large cervical gland to be felt; another one also in left axilla.

Pulse 96. Respiration 15. Temperature normal. Palpation and percussion of right lung anteriorly and in right axilla gave normal resonance. In left lung anteriorly, dullness from apex down to arch of ribs, also in axilla; apex and infraclavicular space absolutely dull or flat, whereas resonance below was greatly impaired; slight respiratory movement of lung was noticed anteriorly and in axilla.

In left lung, posterior, absolute dullness from apex down to about fourth or fifth dorsal vertebra, sound improving downward with very slight respiratory movement of lung. Right side showed normal condition. Tactile fremitus absent on left side.

Auscultation of right lung anterior with the exception of a few fine crepitant râles at the base, showed normal vesicular breathing. In left lung anteriorly and in axilla there was diminished vesicular breathing throughout, semibronchial and in some parts bronchial breathing was present in apex and first interspace; in upper region no râles whatever; very few in lower lobe. Posteriorly, the same type of breathing was noticed down to the middle of the scapula, which improved below, many dry diffuse râles were heard in the lower lobe. Vocal fremitus and whisper-voice on left side not increased, rather diminished. In right lung, posterior, a few crepitant râles at the base, otherwise normal. The 5th dorsal vertebra painful on pressure. Abdomen: Walls flabby, otherwise normal.

Subjective symptoms. Intense radiating pain in upper region of left thorax, in shoulder, axilla and in arm down to elbow region; pain on pressure or even touch in supracapular region and axilla.

Exploratory puncture between 4th and 5th rib posteriorly did not reveal fluid. Microscopical examination of sputum as regards tubercle bacilli, or carcinoma particles proved negative.

From the foregoing history of the case and symptoms conclusion was reached: The occurrence of cancer in the family, the age of the patient, the unusual course of disease, its insidious development, the rather cachectic and not phthisical appearance, the presence of enlarged glands, the characteristic sputum, the intense dullness with absence of increased vocal fremitus and whisper-voice; the absence of fever, rigidity of chest walls, the slow respiration, the exclusion of syphilis and encapsulated empyema, the intense radiating pain, warranted fully the diagnosis of carcinoma of the lung.

The subsequent history, the X-ray picture, taken by Dr. A. Soiland, verified only the diagnosis; and, I may add that some time previous to her death there was noticed a distinct bulging upward of the left apex, a fact which alone speaks for neoplasm and against any other pulmonary disease.

Death occurred September 11, 1904, the disease thus lasting probably 10 to 15 months.

Autopsy Report, by E. L. Leonard, M. D.—The body was that of a small, somewhat emaciated woman about sixty years old. Heart was small and somewhat flabby, valves normal. The left lung was firmly adherent to the parietal pleura by dense adhesions. In the supraclavicular fossa a hard tumor mass was seen filling the fossa. This could be distinctly felt by palpation. It was firmly adherent to the first and second ribs posteriorly and to the clavicle anteriorly. The adhesions were broken away with difficulty, and in places the lung tissue was torn into. Both upper and lower lobes were completely consolidated, and no normal lung tissue was visible. On section the surface appeared gray in color and was very soft and friable. Large areas showed a hemorrhagic condition, while other areas showed consolidation resembling gray hepatization. In the right lung no pleura adhesions were present and a large part of the lung tissue was crepitant. Many hard

nodular masses were felt varying in size from $\frac{1}{4}$ to 1 inch in diameter, of a grayish white color.

The liver showed a fatty infiltration with cloudy swelling. No metastases could be discovered. The pylorus and mucous membrane of the stomach was normal and the intestinal mucosa showed no evidence of metastases. No enlarged mesenteric glands could be found.

The kidneys were of normal consistency and the striations normal. Two very small white nodules were found in the left kidney about $\frac{1}{8}$ inch in diameter and situated on the periphery of the organ. No nodules were found on the right kidney.

The uterus and ovaries were somewhat atrophic. No tumor could be discovered. The cervix and uterine mucosa were normal. Both ovaries contained a few cysts and were atrophic, otherwise normal in appearance.

The histological findings showed a carcinoma of the lung of the cylindrical cell variety. In the less cellular portions of the tumor in the left lung the alveolar structure of the specimen is well marked, the air vesicles lined with atypical proliferating cells, which in some areas filled the lumen of the alveolus.

The metastatic tumors in the right lung were of the same cylindrical cell variety. The liver showed cloudy swelling and slightly fatty infiltration, but otherwise was normal.

The small nodules on the left kidney proved to be metastatic growths of the same general character as the original tumor in the left lung.

Pathological Diagnosis.—Primary cylindrical cell carcinoma of the left lung with metastases in the right lung and left kidney.

To illustrate the rarity of this disease, I may cite that Reinhard, according to Loomis (*Med. Rec.*, Aug. 1895) found only 27 cases in the literature of this country and Europe; of those, 18 were in the right, 9 in the left lung. One year later Dr. Wolf has published a record of 31 cases of primary carcinoma of the lungs in the Dresden City Hospital from 1885 to 1895. The percentage of the death rate according to his statistics was 0.428 (*Med. Rec.*, May, 1896).

Benda gives in the latest issue of the *Zeitschrift für Krebsforschung* the death rate due to cancer of lung as 4:1000, or 4 per cent of all cancer deaths. In 1900 this proportion of 4:1000 rose to 12:1000, and I believe this increase is rather due to improved diagnostic means than to an increase of the disease.

The diagnostic value of the sputum is very problematic, although most of the old and even new text books lay great stress upon its typical character. Wolf found cancer particles in the sputum only once in 31 cases, and Dr. Betschard (*Med. Rec.*, May, 1896) claims that only one case has been recorded of a diagnosis of cancer of the lungs by the sputum.

To Grunsky—Verb Active.

Years ago one Captain Boycott, an Irish landlord, was ostracized by the land league, so that it became impossible for him to buy from, sell to, or to have any dealings whatever with his neighbors. Captain Boycott's name is now a legitimate English verb (to boycott); and may, we believe, be found in recent dictionaries.

Those who have read Dr. C. A. L. Reed's damning indictment of the Panama Canal Commission, "more especially Mr. Grunsky," in the *Journal of the American Medical Association* for March 11th, will realize the appropriateness of the perpetuation of Mr. Grunsky's name in a manner similar to that which overtook Captain Boycott's, to wit: To grunsky, *v. a.*, to obstruct with petty, and insensate officiousness; to harass competent officials with puerile, vexatious, and impracticable restrictions, thus rendering their work alike nugatory and costly.—*St. Louis Med. Review*.

Dr. Luther M. Leisenring of Placerville, was married to Miss Ethel G. Wilcox on April 26th at Omaha.